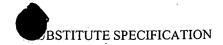
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ABSTRACT OF THE DISCLOSURE

A polymer for a chemically amplified negative photoresist and a photoresist composition are provided. A representative polymer of the invention is a compound of formula 5:

$$\frac{\text{(CH}_{2}-\text{C})_{a}}{\text{(CH}_{2}-\text{C})_{b}} \frac{\text{(CH}_{2}-\text{C})_{b}}{\text{(CH}_{2}-\text{C})_{c}} \frac{\text{(CH}_{2}-\text{C})_{c}}{\text{(CH}_{2}-\text{C})_{d}} \frac{\text{R}_{1}}{\text{n}}$$

$$\frac{\text{R}_{2}}{\text{R}_{3}} \frac{\text{R}_{4}}{\text{R}_{5}} \frac{\text{R}_{14}}{\text{R}_{15}} \frac{\text{R}_{16}}{\text{R}_{17}}$$

$$\frac{\text{R}_{16}}{\text{R}_{17}} \frac{\text{R}_{16}}{\text{C}_{17}}$$
(5)

wherein:

R₁ is H or CH₃;

 R_2 and R_4 are each independently $(R)_{\alpha}(CH_2)_{\beta}R'$ or $(R)_{\alpha}[(CH_2)_{\gamma}\ O]_{\delta}R'$ (wherein, R is CO, CO₂, O, OCO, or OCO₂, R' is O, CO₂, or OCO₂, α is 0 or 1, β is 0 to 5, γ is 1 or 2, and δ is 1 to 5);

 R_3 is represented by one of the formula:

$$-R_{8} \xrightarrow{R_{7}} OR_{8} \xrightarrow{R_{9}} OR_{10} \xrightarrow{R_{10}} -R_{8} \xrightarrow{R_{11}} OR_{11} OR_{11} \xrightarrow{R_{11}} OR_{11} OR_{11} \xrightarrow{R_{11}} OR_{11} OR_{1$$

wherein R_6 , which combines an acetal compound and a vinyl compound, is a C_1 - C_5 saturated alkyl, a C_1 - C_5 ether, or a C_1 - C_5 carbonyl; R_7 to R_{11} are each independently selected from H, C_1 - C_5 saturated alkyls, C_1 - C_5 ethers, C_1 - C_5 carbonyl groups, and C_1 - C_5 alcohol groups; and m is a number ranging from 1-5; and

R₅ is represented by formula:



wherein R₁₂ and R₁₃ are each independently H or OH; and

* represents the bonding site at which the R₄ group is bonded.

 R_{14} and R_{16} are each independently selected from a single bond $(R)_{\alpha}(CH_2)_{\beta}R'$ and $(R)_{\alpha}[(CH_2)_{\gamma}\ O]_{\delta}R'$ (wherein, R is CO, CO₂, O, OCO, or OCO₂, R' is O, CO₂, or OCO₂, α is 0 or 1, β is 0 to 5, γ is 1 or 2, and δ is 1 to 5); R_{15} is a hydroxyl group; R_{17} is a carboxyl group;

a, b, c, and d represent the mole ratios of each monomer, wherein a has a value of 0-0.5, b has a value of 0-0.9, c has a value of 0-0.3, and d has a value of 0-0.3, provided that a+b+c+d=1; and

n represents the degree of polymerization of each polymer, and has a value of at least 2.